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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/012,462	12/12/2001	Akihiro Sasaki	TSUK 0004	8054

24203 7590 09/08/2003

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EXAMINER

CHACKO DAVIS, DABORAH

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/012,462

Applicant(s)

SASAKI ET AL.

Examiner

Daborah Chacko-Davis

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Amendment A filed on May 19, 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 6-12 is/are pending in the application.
- 4a) Of the above claim(s) 7-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 10 and 11 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:  |

**DETAILED ACTION**

***Election/Restrictions***

1. This application contains claims 7-9 (Group II) drawn to an invention nonelected with traverse in Paper No. 4. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, and 10-11, are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0702270 (Tanaka et al) in view of EP 0738745 (Hagiwara et al).

Tanaka, in the abstract, on page 13, lines 57-58, on page 14, lines 1-16, on page 15, lines 5-7, and lines 9-30, and on page 17, lines 3-20, discloses a photosensitive resin composition that is spin-coated onto the silicon substrate and dried to a thickness of about 10 $\mu$  to form a polyimide film that has a residual stress of about 25 MPa, wherein the polyimide film is subjected to exposure to actinic rays that has a wavelength ranging from 200 to 500nm followed by a development and rinsing process, after which the developed pattern is heated so as to heat the composition to form a pattern having a high heat resistance. Tanaka, on pages 3-4, discloses that the photoresist composition

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(negative) comprises a monovalent organic group with carbon to carbon double bonds (unsaturated) on at least part of the side chains of carboxylic acid residues (see formula (1) and formula (2)) (claims 1, and 4). Tanaka, on page 12, lines 44-58, discloses that the aromatic polyimide composition is soluble in aqueous alkaline solutions (claim 3). Tanaka, on page 3, discloses (in formula (1), and formula (2)) that the resin composition is represented by at least a  $\text{NHOR}^4\text{R}^5\text{R}^6\text{R}^7$  group wherein  $\text{R}^4$  and  $\text{R}^5$  and  $\text{R}^7$  are independent of one another and each represent hydrocarbon groups with photopolymerizable carbon to carbon to double bond (claim 10). Tanaka, on page 4, lines 30-57, on page 12, lines 46-58, and on page 14, lines 5-10, discloses that the polyimide resin composition includes an alkali developable amine group (claim 11).

The difference between the claims and Tanaka is that Tanaka does not disclose that the light source used for exposure are i-lines. Tanaka does not disclose that the polyimide deposited on the substrate has a transmittance of at least 5% at a wavelength of 365 nm (claim 2).

Hagiwara, on page 9, lines 16-32, on page 13, lines 19-29, on page 20, lines 14-16, and on page 21 table 2, discloses that the polyimide precursor coating is exposed using an i-line stepper as the source and that the polyimide precursor has a transmission of at least 5% at 365nm.

Therefore, it would be obvious to a skilled artisan to modify Tanaka by employing the method of exposing the polyimide precursor as taught by Hagiwara because Tanaka employs the range of an i-line stepper for the exposure process and uses a polyimide precursor as the coating on the silicon substrate and Hagiwara, on page 22, lines 1-9,

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discloses that using the polyimide precursor results in good transmittance and is suitable for preparing a photosensitive resin composition that has excellent image formation with an i-line stepper, and excellent mechanical properties and thermal properties such as high heat resistance.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0702270 (Tanaka et al) in view of EP 0738745 (Hagiwara et al) as applied to claims 1-5 above, and further in view of U. S. Patent No. 6,428,399 (Tanabe et al).

Tanaka in view of Hagiwara is discussed in paragraph no. 3.

The difference between the claim and Tanaka in view of Hagiwara is that Tanaka in view of Hagiwara does not disclose that the silicon substrate has a diameter of at least 12 inches.

Tanabe, in col 2, lines 46-50, discloses that the silicon substrates used for making devices have a diameter of about 12 inches.

Therefore, it would be obvious to a skilled artisan to modify Tanaka in view of Hagiwara by employing a substrate with dimensions suggested by Tanabe because Tanabe, in col 2, lines 46-50, discloses that using 12 inches diameter silicon wafer enables the growth of big single crystals (with a wide section) easily.

***Allowable Subject Matter***

5. Claim 12 (NEW) is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

6. Applicant's arguments filed on May 19, 2003 (paper no. 6) in regards to claims 1-4, 6, and 10-11, have been fully considered but they are not persuasive. The 103 rejections made in the previous office action have been maintained.

A) Applicants argue that Tanaka et al., does not teach or even suggest a photosensitive resin composition having a transmittance of at least 1% at a wavelength of 365nm as recited in claims 1, and 4.

Tanaka is not depended upon to disclose the 1% transmittance of the resist composition at a wavelength of 365nm. Hagiwara is depended upon to teach these limitations (see paragraph no. 3).

B) Applicants argue that Tanaka does not disclose the composition of the photosensitive resin recited in claims 1, and 4 (amended) and that Tanaka does not teach or even suggest the monovalent organic group (negative-type photosensitive resin) recited in claim 10 (new).

Applicants argument in regards to the composition of the photosensitive resin is directed towards the amendment in claims 1, and 4 and towards the newly added claim 10. Tanaka, on pages 3-4, does teach the resin composition recited in these claims (1, 4, and 10)(also see paragraph no. 3).

C) Applicants argue that Tanaka does not teach or even suggest the embodiment recited in claim 12 (new).

See paragraph no. 5.

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**Conclusion**


7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (703) 306-5923. If the examiner is unavailable, you may contact her supervisor, Mark F. Huff at (703) 308-2464. FAX communications should be sent to the appropriate FAX number; (703) 872-9311 for After Final Responses only or (703) 872-9310 for all other responses. FAXES received after 4:00 P.M. will not be processed until the following business day.

dcd

August 25, 2003.



MARK F. HUFF  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700